

AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. - 20. (Canceled)

21. (New) A management system for provisioning services to subscribers of a communication network, the management system comprising a Management Entity that has a Provisioning Node side intended for provisioning a service, and a number of Managed Entities each one having a Provisioned Node side intended for receiving provisioning orders from the Management Entity, wherein:

the Provisioning Node side and the number of Provisioned Node sides support a Subscription Management Generic Interface (SuM-GI) that includes a SuM-GI Data Model;

the Provisioning Node side has a number of Protocol Adapters for communicating with specific protocol technologies (CORBA, SOAP, LDAP) used at each Managed Entity; and

each Provisioned Node side has at least one Protocol Adapter (CORBA, LDAP) for communicating with a particular protocol technology used by the Management Entity to send provisioning orders;

the management system further comprising:

the provisioning node side comprises a SuM-GI Manager for sending provisioning orders (P-01, P-02) to manage subscriptions to services in any Managed Entity with a number of SuM-GI Operations operating on Objects Classes included in the SuM-GI Data Model;

each provisioned node side comprises a SuM-GI Agent for receiving provisioning orders with a number of SuM-GI Operations operating on Objects Classes included in the SuM-GI Data Model; and

the provisioned node side in at least one Managed Entity includes a Mapping Module for mapping the received instances of the SuM-GI Data Model into an internal data model .

22. (New) The management system of claim 21, wherein the Subscription Management Generic Interface (SuM-GI) is arranged for holding specific attributes or characteristics of those objects included in the SuM-GI Data Model in a generic information placeholder associated to each particular object.

23. (New) The management system of claim 22, wherein the Subscription Management Generic Interface (SuM-GI) is arranged for allowing each individual SuM-GI Agent to determine whether or not each particular attribute in a list of attributes is applicable in the node where the SuM-GI Agent resides, the applicability depending on a specific internal data model in said node.

24. (New) The management system of claim 21, wherein at least one Managed Entity is a Network Element in which a given service is provisioned, and wherein a number of Managed Entities may optionally form a hierarchical Sub-Network Manager structure interposed between a centralized Management Entity acting as a Network Manager, and a number of Network Elements, each Sub-Network Manager comprising:

a SuM-GI Manager , a SuM-GI Agent and a number of Protocol Adapters , thus presenting a Provisioned Node side towards a Provisioning Node side at a Network Manager or at another Sub-Network Manager, and a Provisioning Node Side towards a Provisioned Node side at a Network Element or at another Sub-Network Manager.

25. (New) The management system of claim 21, wherein the Subscription Management Generic Interface (SuM-GI) includes a SuM-GI Data Model further comprising any Managed Object Class, or combinations thereof, selected from a group of Object Classes that includes:

Subscription object class, intended for modeling the agreement or contract established between a subscriber and a service provider and arranged for containing all the information related with the subscription;

Subscriber object class, intended for identifying a subscriber holding a subscription with a service provider for a given service and arranged for registering a number of users allowed to use said given service;

ProvidedService object class, intended for modeling a service provider inventory of offered services and arranged for maintaining applicable capabilities of said offered services;

User object class, intended for identifying a user associated to a given subscriber and arranged for customizing particular user preferences for a given service;

UserServicePreferences object class, intended for allowing a number of users associated with a subscriber to have particular service preferences and arranged for containing different service capabilities enabled for each user;

SubscriptionIRP object class, intended for indicating to a SuM-GI Manager the SuM-GI version supported by each particular SuM-GI Agent in a Managed Entity, and thus arranged for comprising a list of the SuM-GI versions supported by known SuM-GI Agents;

SubscriptionFunction object class, intended for sub-classing Subscription, Subscriber, User, and UserServicePreferences related object classes and arranged for providing attributes that are common to underlying Managed Object Classes; and

ServiceProviderFunction object class, intended for sub-classing ProvidedService related object classes and arranged for providing attributes that are common to underlying Managed Object Classes.

26. (New) The management system of claim 25, wherein the Subscription Management Generic Interface (SuM-GI) includes a SuM-GI Operation set intended to act on the SuM-GI Data Model and comprising any Operations, or combinations thereof, selected from groups of operations that include:

creating, modifying, removing and getting Subscriber;

creating, modifying, removing and getting User;

creating, modifying, removing and getting Provided Service;
creating, modifying, removing and getting Subscription;
adding, removing and getting User to or from a given Subscription; and
setting and getting User Service Preferences for a user under a given Subscription.

27. (New) A Management Entity having a Provisioning Node side intended for provisioning a service towards a Network Element by sending provisioning orders, the Management Entity supporting a Subscription Management Generic Interface (SuM-GI) that includes a SuM-GI Data Model and suitable for use in the management system of claim 1, the Management Entity comprising:

at least one Protocol Adapter for communicating with a specific protocol technology (CORBA, SOAP, LDAP) used at the Network element; and

a SuM-GI Manager for sending provisioning orders (P-01, P-02) to manage subscriptions to services in the Network Element with a number of SuM-GI Operations operating on Objects Classes included in the SuM-GI Data Model, and independently from an internal data model used by the Network Element.

28. (New) The Management Entity of claim 27, wherein the Subscription Management Generic Interface (SuM-GI) includes a SuM-GI Data Model further comprising any Managed Object Class, or combinations thereof, selected from a group of Object Classes that includes:

Subscription object class, intended for modeling the agreement or contract established between a subscriber and a service provider and arranged for containing all the information related with the subscription;

Subscriber object class, intended for identifying a subscriber holding a subscription with a service provider for a given service and arranged for registering a number of users allowed to use said given service;

ProvidedService object class, intended for modeling a service provider inventory of offered services and arranged for maintaining applicable capabilities of said offered services;

User object class, intended for identifying a user associated to a given subscriber and arranged for customizing particular user preferences for a given service;

UserServicePreferences object class, intended for allowing a number of users associated with a subscriber to have particular service preferences and arranged for containing different service capabilities enabled for each user;

SubscriptionIRP object class, intended for indicating to a SuM-GI Manager the SuM-GI version supported by each particular SuM-GI Agent in a Managed Entity, and thus arranged for comprising a list of the SuM-GI versions supported by known SuM-GI Agents;

SubscriptionFunction object class, intended for sub-classing Subscription, Subscriber, User, and UserServicePreferences related object classes and arranged for providing attributes that are common to underlying Managed Object Classes; and

ServiceProviderFunction object class, intended for sub-classing ProvidedService related object classes and arranged for providing attributes that are common to underlying Managed Object Classes.

29. (New) A Network Element where a service is provisioned to subscribers of a communication network, the Network Element suitable for being used as a Managed Entity in the management system of claim 1 and supporting a Subscription Management Generic Interface (SuM-GI) that includes a SuM-GI Data Model, the Network Element comprising:

at least one Protocol Adapter (CORBA, LDAP) for communicating with a particular protocol technology used by a Management Entity to send provisioning orders;

a SuM-GI Agent for receiving provisioning orders with a number of SuM-GI Operations operating on Objects Classes included in the SuM-GI Data Model; and

a Mapping Module for mapping received instances of the SuM-GI Data Model (P-01, P-02) into an internal data model .

30. (New) The Network Element of claim 29 wherein the Subscription Management Generic Interface (SuM-GI) includes a SuM-GI Data Model further

comprising any Managed Object Class, or combinations thereof, selected from a group of Object Classes that includes:

Subscription object class, intended for modeling the agreement or contract established between a subscriber and a service provider and arranged for containing all the information related with the subscription;

Subscriber object class, intended for identifying a subscriber holding a subscription with a service provider for a given service and arranged for registering a number of users allowed to use said given service;

ProvidedService object class, intended for modeling a service provider inventory of offered services and arranged for maintaining applicable capabilities of said offered services;

User object class, intended for identifying a user associated to a given subscriber and arranged for customizing particular user preferences for a given service; and

UserServicePreferences object class, intended for allowing a number of users associated with a subscriber to have particular service preferences and arranged for containing different service capabilities enabled for each user

SubscriptionIRP object class, intended for indicating to a SuM-GI Manager the SuM-GI version supported by each particular SuM-GI Agent in a Managed Entity, and thus arranged for comprising a list of the SuM-GI versions supported by known SuM-GI Agents;

SubscriptionFunction object class, intended for sub-classing Subscription, Subscriber, User, and UserServicePreferences related object classes and arranged for providing attributes that are common to underlying Managed Object Classes; and

ServiceProviderFunction object class, intended for sub-classing ProvidedService related object classes and arranged for providing attributes that are common to underlying Managed Object Classes.

31. (New) A method for provisioning services to subscribers of a communication network, the method applying between a Management Entity that has a Provisioning Node side intended for provisioning a service, and a number of Managed

Entities each one having a Provisioned Node side intended for receiving provisioning orders from the Management Entity, the method comprising the steps of:

assigning a specific protocol technology for communication between a Subscription Management Generic Interface (SuM-GI) Manager at a Provisioning Node side and each SuM-GI Agent at respective Provisioned Node sides;

sending provisioning orders from a SuM-GI Manager toward at least one SuM-GI Agent with a number of SuM-GI Operations intended for operating on Object Classes included in a SuM-GI Data Model; and

determining at a SuM-GI Agent, upon receipt of a provisioning order from a SuM-GI Manager, whether current node is a Network Element (NE) where the service is provisioned or there is at least one lower hierarchical Managed Entity, namely a Sub-Network Manager or a Network Element, where the provisioning order must be submitted.

32. (New) The method of claim 31, wherein upon receipt of a provisioning order from a Subscription Management Generic Interface (SuM-GI) Manager in a SuM-GI Agent at a Sub-Network Manager, the method further comprising the steps of:

transferring the provisioning order received from a first SuM-GI Manager at a Provisioning Node side of a Management Entity or higher hierarchical Managed Entity toward a second SuM-GI Manager at a Provisioning Node side of the current node;

assigning a specific protocol technology for communication between the second SuM-GI Manager at the Provisioning Node side of the current node and each SuM-GI Agent at respective Provisioned Node sides of lower hierarchical Managed Entities; and

sending provisioning orders from the second SuM-GI Manager toward at least one SuM-GI Agent at a Provisioned Node side of a lower hierarchical Managed Entity with a number of SuM-GI Operations intended for operating on Object Classes included in a SuM-GI Data Model.

33. (New) The method of claim 31, wherein upon receipt of a provisioning order from a Subscription Management Generic Interface (SuM-GI) Manager in a SuM-GI Agent at a Network Element, the method further comprising the steps of:

mapping the provisioning order received from a SuM-GI Manager at a Provisioning Node side with a number of SuM-GI Operations intended for operating on Object Classes included in a SuM-GI Data Model into a number of internal operations intended for operating on an internal data model supported by the current Network Element; and

acting on the internal data model with the mapped internal operation in order to carry out the provisioning order received from a SuM-GI Manager at a Provisioning Node side.

34. (New) The method of claim 33, wherein upon receipt of a provisioning order from a Subscription Management Generic Interface (SuM-GI) Manager in a SuM-GI Agent at a Network Element for which resulting data is expected, the method further comprising the steps of:

mapping the resulting data of an internal data model into appropriate parameters of a number of SuM-GI Operations intended for operating on Object Classes included in a SuM-GI Data Model; and

returning provisioning order results from the SuM-GI agent toward the SuM-GI Manager at a Provisioning Node side of a Management Entity or higher hierarchical Managed Entity with appropriate parameters in a number of SuM-GI Operations intended for operating on Object Classes included in a SuM-GI Data Model.

35. (New) The method of claim 31, wherein the Subscription Management Generic Interface (SuM-GI) includes a SuM-GI Data Model further comprising any Managed Object Class, or combinations thereof, selected from a group of Object Classes that includes:

Subscription object class, intended for modeling the agreement or contract established between a subscriber and a service provider and arranged for containing all the information related with the subscription;

Subscriber object class, intended for identifying a subscriber holding a subscription with a service provider for a given service and arranged for registering a number of users allowed to use said given service;

ProvidedService object class, intended for modeling a service provider inventory of offered services and arranged for maintaining applicable capabilities of said offered services;

User object class, intended for identifying a user associated to a given subscriber and arranged for customizing particular user preferences for a given service; and

UserServicePreferences object class, intended for allowing a number of users associated with a subscriber to have particular service preferences and arranged for containing different service capabilities enabled for each user.

36. (New) The method of claim 31, wherein the Subscription Management Generic Interface (SuM-GI) includes a SuM-GI Operation set intended to act on a SuM-GI Data Model and comprising any Operations, or combinations thereof, selected from groups of operations that include:

creating, modifying, removing and getting Subscriber;

creating, modifying, removing and getting User;

creating, modifying, removing and getting Provided Service.

creating, modifying, removing and getting Subscription;

adding, removing and getting User to or from a given Subscription; and

setting and getting User Service Preferences for a user under a given Subscription;

37. (New) The method of claim 35, wherein the Subscription Management Generic Interface (SuM-GI) further comprises any Managed Object Class, or combinations thereof, selected from a group of Object Classes that includes:

SubscriptionLRP object class, intended for indicating to a SuM-GI Manager the SuM-GI version supported by each particular SuM-GI Agent in a Managed Entity, and thus arranged for comprising a list of the SuM-GI versions supported by known SuM-GI Agents;

SubscriptionFunction object class, intended for sub-classing Subscription, Subscriber, User, and UserServicePreferences related object classes and arranged for providing attributes that are common to underlying Managed Object Classes; and

ServiceProviderFunction object class, intended for sub-classing ProvidedService related object classes and arranged for providing attributes that are common to underlying Managed Object Classes.

38. (New) The method of claim 31, wherein the Subscription Management Generic Interface (SuM-GI) is arranged for holding specific attributes or characteristics of those objects included in the SuM-GI Object Model in a generic information placeholder associated to each particular object.

39. (New) The method of claim 38, wherein the Subscription Management Generic Interface (SuM-GI) is arranged for allowing each individual SuM-GI Agent to determine whether or not each particular attribute in a list of attributes is applicable in the node where the SuM-GI Agent resides, the applicability depending on a specific internal data model in said node.

40. (New) A use of a Subscription Management Generic Interface (SuM-GI) comprising a SuM-GI Data Model and SuM-GI Operations intended for provisioning services to subscribers of a communication network wherein said Subscription Management Generic Interface (SuM-GI) operates in accordance with an Integration Reference Point (IRP) specification within an IRP Generic Network Resource Model by further comprising any Managed Object Class, or combinations thereof, selected from a group of Object Classes that includes:

SubscriptionIRP object class, intended for indicating to a SuM-GI Manager the SuM-GI version supported by each particular SuM-GI Agent in a Managed Entity, and thus arranged for comprising a list of the SuM-GI versions supported by known SuM-GI Agents;

SubscriptionFunction object class, intended for sub-classing Subscription, Subscriber, User, and UserServicePreferences related object classes and arranged for providing attributes that are common to underlying Managed Object Classes; and

ServiceProviderFunction object class, intended for sub-classing ProvidedService related object classes and arranged for providing attributes that are common to underlying Managed Object Classes.